

SerRSmt (D-15): sc-240861

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. SerRSmt (seryl-tRNA synthetase, mitochondrial), also known as SARS2 or SARSM, is a 518 amino acid member of the class-II aminoacyl-tRNA synthetase family that catalyzes the tRNA^{Ser}-serine aminoacylation reaction. Localized to the mitochondria, SerRSmt exists as a homodimer and contains a core catalytic domain and a tRNA-binding domain. SerRSmt catalyzes the attachment of serine to tRNA(Ser) and is also able to aminoacylate tRNA(Sec) with serine, to form the misacylated tRNA L-seryl-tRNA(Sec). Via this interaction, SerRSmt is implicated in selenocysteine (Sec) biosynthesis.

REFERENCES

- Miseta, A., et al. 1991. Mammalian seryl-tRNA synthetase associates with mRNA *in vivo* and has homology to elongation factor 1 α . *J. Biol. Chem.* 266: 19158-19161.
- Wu, X.Q., et al. 1993. The long extra arms of human tRNA((Ser)Sec) and tRNA(Ser) function as major identify elements for serylation in an orientation-dependent, but not sequence-specific manner. *Nucleic Acids Res.* 21: 5589-5594.
- Vincent, C., et al. 1997. Genomic organization, cDNA sequence, bacterial expression, and purification of human seryl-tRNA synthase. *Eur. J. Biochem.* 250: 77-84.
- Heckl, M., et al. 1998. Minimal tRNA(Ser) and tRNA(Sec) substrates for human seryl-tRNA synthetase: contribution of tRNA domains to serylation and tertiary structure. *FEBS Lett.* 427: 315-319.
- Yokogawa, T., et al. 2000. Characterization and tRNA recognition of mammalian mitochondrial seryl-tRNA synthetase. *J. Biol. Chem.* 275: 19913-19920.
- Shimada, N., et al. 2001. Dual mode recognition of two isoacceptor tRNAs by mammalian mitochondrial seryl-tRNA synthetase. *J. Biol. Chem.* 276: 46770-46778.
- Chimnarong, S., et al. 2005. Dual-mode recognition of noncanonical tRNAs(Ser) by seryl-tRNA synthetase in mammalian mitochondria. *EMBO J.* 24: 3369-3379.
- Nagao, A., et al. 2007. Aminoacyl-tRNA surveillance by EF-Tu in mammalian mitochondria. *Nucleic Acids Symp. Ser.* 51: 41-42.
- Sherrer, R.L., et al. 2008. Divergence of selenocysteine tRNA recognition by archaeal and eukaryotic O-phosphoserine-tRNA^{Sec} kinase. *Nucleic Acids Res.* 36: 1871-1880.

CHROMOSOMAL LOCATION

Genetic locus: SARS2 (human) mapping to 19q13.2; Sars2 (mouse) mapping to 7 A3.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

SOURCE

SerRSmt (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SerRSmt of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-240861 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SerRSmt (D-15) is recommended for detection of SerRSmt of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SerRSmt (D-15) is also recommended for detection of SerRSmt in additional species, including equine, canine and bovine.

Suitable for use as control antibody for SerRSmt siRNA (h): sc-97305, SerRSmt siRNA (m): sc-153376, SerRSmt shRNA Plasmid (h): sc-97305-SH, SerRSmt shRNA Plasmid (m): sc-153376-SH, SerRSmt shRNA (h) Lentiviral Particles: sc-97305-V and SerRSmt shRNA (m) Lentiviral Particles: sc-153376-V.

Molecular Weight of SerRSmt: 58 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **SerRSmt (C-11): sc-514991**, our highly recommended monoclonal alternative to SerRSmt (D-15).